

DETECTION AND MANAGEMENT OF OTHER SEXUALLY TRANSMITTED DISEASES*

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AFTER syphilis, gonorrhea, nongonorrheal urethritis, and herpes II, there are still about 20 more venereal infections to look forward to. Improved bacteriologic, virologic, and immunologic methods applied to the diseases of the genital organs have raised the curtain on a larger scene with many more players than previously.

I have tabulated the agents known to be sexually transmitted or showing evidence of such transmission; the list now contains more than 20 infections. How does the practising physician meet and identify these disorders?

GROUP I: ULCERS OF THE GENITALIA (TABLE I)

Syphilis. The most important genital ulcer is of course the syphilitic chancre, which should be the major concern in diagnosis. Darkfield examinations for *Treponema pallidum* should be done on all open penile ulcers. Secondary syphilis may present as multiple ulcers of the penis, scrotum, vagina, mouth, or anus. Here too, darkfield examinations are important because these lesions are laden with spirochetes.

Chancroid. Soft chancre is caused by *Hemophilus ducreyi*, a small Gram-negative bacillus which is difficult to culture since it requires a medium containing whole blood. Typically, a small vesicular lesion appears within three to five days after the infection. In a day or two it ulcerates, leaving a soft, very tender, shallow ulcer with an irregular purulent base and a red periphery. Multiple ulcers may occur by autoinoculation. In most cases, within one or two weeks there is regional lymphad-

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TABLE I. GENITAL ULCERS

Syphilis
Herpes genitalis (A and B)
Chancroid
Lymphogranuloma venereum
Granuloma inguinale (donovanosis)
Condylomata acuminata
Molluscum contagiosum

enitis—usually unilateral, occasionally bilateral—followed rapidly by supuration. This involves one node mainly. The pus can be aspirated easily when fluctuation occurs and should be cultured if a laboratory is available, not only to isolate the specific organism, but to identify other infectious agents. The ulcers themselves may yield the organism but the lesion usually is highly contaminated.

The results of treatment are excellent. Most cases respond to sulfisoxazole (Gantrisin) 1 gm. q.i.d. until the nodes subside and the ulcers heal. The course usually lasts about two weeks. Sulfisoxazole does not interfere with darkfield study for the treponemes of syphilis. Should the lesion not heal, tetracycline 500 mg. q.i.d. or chloramphenicol may be used. On occasion chancroid can destroy substantial portions of the penis and cause extensive ulceration of the vagina, especially when infection with fusospirochetal organisms is superimposed.

Lymphogranuloma venereum is a disease caused by a specific intracellular bacterium of the genus *Chlamydia*. Along with its biological relatives, which cause trachoma, inclusion conjunctivitis, and nongonorrheal urethritis, these organisms are sometimes referred to as the “trich” group. The agent causes a complex process, which starts as a small vesicle and which breaks down to ulcerate, generally within one to two weeks after infection. It is not very painful and, in the female, passes unnoticed. This phase is transient and may even be absent. Occasionally the disease may present as an indolent ulcer. Within two to three weeks inguinal lymphadenitis develops, which may be mild and clinically inapparent. Usually, however, there is a large, inflamed cluster of lymph nodes matted together and adherent to the overlying skin, which is red, tender, and edematous. The mass may break down and discharge through multiple sinus tracts. Fever, leucocytosis, and malaise may be present during this phase. If untreated, the lesion may subside spontaneously or suppuration may continue. In a

few cases it may present in unusual syndromes, i.e., meningoencephalitis, arthritis, osteomyelitis, erythema nodosum, or "fever of unknown origin."

In females and in homosexual males the agent infects the rectum, producing a proctocolitis which may be indistinguishable from acute and chronic ulcerative colitis. The pelvic lymph glands are involved, and the process may extend beyond the sigmoid to attack the descending colon. In the absence of treatment rectal strictures occur, causing intestinal obstruction. The strictures arise within one to two inches above the internal anal sphincter (easily within reach of the finger); they may extend as high as the original inflammatory process, i.e., the descending colon. The colon may rupture during labor, with disastrous outcome. Perianal and rectovaginal fistulas occur. Chronic lymphatic blockade of the pelvic lymphatics causes vulval elephantiasis, papillomata, and chronic ulcerations.

The diagnosis is made clinically and is confirmed by several tests. The Frei test, an intradermal test, today utilizes the purified pathogen grown on chick embryo yolk sac. A positive result appears within 72 hours in the form of an acute red papule 0.5 cm. in diameter, accompanied usually by edema and erythema. Positive reactions occur about 15 days after infection and may persist for life. The test is positive in about 90% of cases of lymphadenitis and probably is close to 100% in proctitis. The complement fixation test is quantitated more easily; in acute cases the titre rises and falls after treatment. The experience of the individual laboratory will determine the antibody level which is considered diagnostic, usually 1:20. In systemic infections the titre should be well above 1:40. In long-standing infections, hyperglobulinemia with rheumatoid factor and elevations of immunoglobulin G and immunoglobulin A are found. Treatment is effective since the disease responds to sulfisoxazole, tetracycline, erythromycin, and chloramphenicol. When ulceration of the genitals necessitates darkfield examination, treatment should start with sulfisoxazole 1 gm., q.i.d. for 21 days. Abscesses should be aspirated when necessary. The old interdiction against incision and drainage is no longer valid today, now that we have effective antibacterial agents. Proctitis can be controlled easily and rectal discharge ceases. With early treatment strictures should be less frequent than formerly, and smaller.

Granuloma inguinale. This disease may involve the penis, vagina, inguinal cleft, and anus in a slowly extending ulceration. The specific agent is an intracellular coccobacillus within mononuclear cells, *Donovania granulomatis*. While the agent has been grown outside the

body, the cultured material does not produce the disease. Starting as a small nodule which ulcerates, it is not painful; it gradually extends itself, producing an extensive, undermined, destructive, beefy, red, granulating ulcer, which becomes secondarily infected. The result is a foul, stinking mess. Spread to the inguinal areas occurs by the lymphatic route.

Diagnosis is confirmed by scraping of the lesion and staining with Giemsa stain, or the biopsied lesion may be crushed, smeared, and stained. In each case, the pathognomonic cell is a large mononuclear cell containing many bacteria that resemble safety pins and stain blue at both poles, with a pink halo surrounding the blue spots.

The infection is increasingly common among homosexuals, in whom it is mainly perianal.

The recommended treatment is tetracycline, erythromycin, chloramphenicol, or ampicillin, 2 gm. daily for two weeks; Lincocin also is prescribed in a similar dose.

Herpes: types A and B. This is probably the most common cause of genital ulceration nowadays; it will be discussed in detail by Dr. William E. Josey in a later paper at this conference.

Genital warts—Condylomata acuminata. These warts are caused by a virus of the papova group, but frequently are associated with varied accumulations of nonsyphilitic spirochetes. The penis, vagina, and anus may be involved. The lesions may become extensive and during pregnancy may become so large as to interfere with labor and delivery.

In treatment, solutions or suspensions of podophyllin in mineral oil, alcohol, or tincture of benzoin are applied to the warts. The lesions should be washed thoroughly with soap and water within three hours after treatment. The medication can cause irritation of the tender adjacent tissues. In addition, systemic toxicity and involvement of the central nervous system have been reported when the material was not washed off. Other treatments also may be used. During pregnancy, liquid nitrogen, electrodesiccation, or excision should be employed to prevent possible toxicity to the fetus from absorption of podophyllin.

Molluscum contagiosum. The typical lesion, usually multiple, is waxy or pink and is centrally umbilicated. Curettage and microscopic study of the crushed material or surgical biopsy show the typical intracytoplasmic inclusions called molluscum bodies.

Treatment consists of local destruction with trichloroacetic acid, liquid nitrogen, phenol, and the like.

TABLE II. URETHRITIS AND VAGINITIS

Gonorrhea
Nongonorrheal urethritis (<i>chlamydia</i>)
Trichomoniasis
<i>Candida (monilia)</i>
β streptococci group B
<i>Corynebacterium (hemophilus) vaginale</i>
<i>T mycoplasma</i>
Cytomegalovirus

GROUP II: VAGINITIS AND URETHRITIS (TABLE II)

The symptoms of vaginal infection are discharge, irritation, pruritus, dysuria, and dyspareunia. The symptoms are the same regardless of the infecting agent. While the quality of the discharge may give a clue to the specific organism, a diagnostic routine usually can reveal the answer.

Gonorrhea, the most common cause of vaginitis, has been discussed by Drs. King K. Holmes and Harry Pariser in other papers.

Chlamydia trachomatis. Nonspecific urethritis due to *Chlamydia trachomatis* also has been discussed (by Dr. David Oriel). The infection usually produces no symptoms in the female, but prophylactic treatment with tetracycline should be given when the sexual partner is infected.

Trichomoniasis. Physical examination discloses an inflamed vaginal lining, frequently with punctate red spots and a thin, frothy white-yellow or green discharge. In the fresh wet preparation (a drop of exudate diluted with saline) the typically pear-shaped trichomonad is seen as an actively motile organism. Its motility is characteristic. The agent also can be seen on Papanicolaou smears in less than half of the cases; cultures can be made, but a special laboratory is necessary.

The results of treatment are excellent. Flagyl (metronidazole) 250 mg. t.i.d. for seven to 10 days will cure 95% of the cases. It is essential that the sexual partner be treated simultaneously, otherwise reinfection will occur. This should be done whether or not the trichomonas is found in the male. The search in the male is difficult and frequently unsuccessful. Local treatment with vaginal suppositories of Flagyl usually is not curative but may be used to suppress symptoms during the last trimester of pregnancy. Flagyl is not officially approved for treatment during pregnancy, but it appears to be safe during the last two trimesters. Alcohol should be

avoided during Flagyl therapy, since it produces an antabuse-like reaction, with abdominal pain, flushing, and tremor.

Candidiasis (moniliasis). Infection or colonization with *Candida* is frequent and does not always produce symptoms. It is troublesome in diabetes, as well as in hypoparathyroidism, Addison's disease, pancreatitis, steroid therapy, and severe chronic illness. Candidal vaginitis commonly is seen in patients who have had broad-spectrum antibiotics or Flagyl.

There is much interest today in the relation between the specific content of oral contraceptives and candidiasis. *Candida* does thrive on the high glycogen content of the vagina during pregnancy and during the luteal phase of the menstrual cycle. When vaginitis is symptomatic, there is pruritus, a white or yellow cheesy exudate, erythema, burning, and dyspareunia. Perianal and crural redness and maceration may develop.

The diagnosis is based on the clinical appearance of the lesions and the total clinical picture; it is confirmed by Gram stain of the discharge or a wet-mount preparation utilizing potassium hydroxide. Species can be identified by culture on Sabouraud's medium.

Treatment usually is successful if Mycostatin vaginal inserts are used twice daily for no less than two weeks. The surrounding inflamed areas, vulva, groin, and perianal region should be treated with Mycostatin creme twice daily. Amphotericin B, candicidin, and myconizole also have been reported as therapeutic, as well as Vioform or Diodoquin vaginal suppositories. Resistant or recurrent infections should cause the physician to look for systemic disease and to search for causes in the sexual partner. The search should include examination of the fingernails, skin, and penis. Condoms should be used during treatment and for several weeks afterward. Intra-urethral instillation of Mycostatin solution has been suggested for treatment of the male when urethral or seminal cultures are positive.

Corynebacterium (hemophilus) vaginale. This organism causes vaginitis in which the exudate is surprisingly free of neutrophilic leucocytes. On Gram stain, vaginal epithelial cells are seen to be covered with small, pleomorphic, Gram-negative coccobacilli. Treatment is ampicillin 500 mg. q.i.d. for seven to 10 days.

Beta streptococci—Group B. Among pregnant women the vagina may be colonized by several different kinds of streptococcus. These are being studied because of the serious danger of sepsis in the newborn. Premature labor and postpartum fever also are associated with these infections.

Mycoplasma. Colonization of the maternal vagina by mycoplasma is

TABLE III. SYSTEMIC DISEASES

Infectious mononucleosis
Hepatitis A and B
Cytomegalovirus

believed to be associated with low birth weight in infants. In addition, it is suspected that the organism may cause postpartum fever in mothers and cutaneous infection in newborns. Tetracycline or erythromycin is effective against mycoplasma, but tetracycline is contraindicated during pregnancy.

Cytomegalovirus. This virus of the herpes group is widespread and causes a variety of syndromes. Among these are a disease resembling infectious mononucleosis, acute and chronic pneumonitis, and disseminated infection in the compromised host (as in renal transplantation and patients with cancer). The virus causes significant intrauterine infection of the fetus which results in microcephaly and mental retardation. Postnatal infection of the newborn also occurs. The suspicion that the virus is sexually transmitted is based on the fact that isolation of the virus and antibody response are more frequent in patients at venereal disease clinics and in those with a history of gonorrhea. The virus has been isolated from semen weeks after the occurrence of a disease resembling infectious mononucleosis. Since intrauterine infection can result in microcephaly and mental retardation, it has been surmised that this infection may be a major cause of mental retardation, involving as many as 4,000 births a year.

GROUP III: OTHER SYSTEMIC DISEASES (TABLE III)

Infectious mononucleosis. This disease is well known.

Viral hepatitis. Group A hepatitis is associated with oral-fecal transmission; there is reason to believe that homosexuals show an increased incidence. Group B hepatitis now is believed to be spread by sexual contact. The evidence is based on 1) the increased evidence of hepatitis B antigen among the contacts of those with other sexually transmitted diseases, 2) the increased incidence among marital partners as opposed to other members of the same household, and 3) the isolation of the viral antigen from saliva, urine, semen, and vaginal secretions. It may be that sexual transmission is the major method of spread of hepatitis B.

TABLE IV. PARASITIC DISEASES

Ectoparasites
Pubic lice
Scabies
Endoparasites
1) Amebae
a) <i>Histolytica</i>
b) <i>Dientameba fragilis</i>
c) <i>Iodameba butschli</i>
2) <i>Giardia lamblia</i>
3) Helminths
a) <i>Enterobius</i>
b) <i>Hymenolepis</i>

GROUP IV: PARASITES (TABLE IV)

Ectoparasites. Scabies and pediculi are diagnosed easily once there is awareness of the possibility. Scabies produces extensive itching and dermatitis of the abdomen, genital area, and interdigital webs. The mites causing these diseases can be isolated from their burrows to confirm the diagnosis. Pubic lice are identified easily by careful inspection. Treatment consists of showering followed by liberal application of gamma hexachlorobenzene (Kwell) lotion or creme to all parts of the body, especially the hairy parts, for 24 hours. It may be necessary to repeat the treatment in four to seven days.

Endoparasites. Various amebae, *Giardia*, and helminths have been reported to be transmitted during sexual activity. Dr. Benjamin Kean recently apprised me of his observation that recurring amebic dysentery now is found among homosexuals in this city. Since orogenital and genitoanal contacts are not limited to homosexuals, we shall have to increase our awareness of this mode of transmission of intestinal disease, especially when the infections recur.

SOME GENERAL PRINCIPLES

- 1) Single infections occur but multiple infections are frequent.
- 2) With increasing numbers of exposures to different partners, the likelihood of multiple infection increases.

3) When treating one patient, always bear in mind that others are involved. Sexual partners should be sought and therapeutic or prophylactic treatment given.

4) Prophylactic measures that prevent multiple infections are needed. The only one which has this merit is the condom.

5) With the large number of bacterial and viral agents that colonize the birth canal, especially in the last trimester, and the great potential for perinatal morbidity from some of these agents, sexual practises during pregnancy should be studied for their effect on perinatal infection.

GENERAL REFERENCES

- Wisdom, A.: *Color Atlas of Venereology*. Chicago, Yearbook Med. Pub., 1973.
Gardner, H. L. and Kaufman, R. H.: Viral infections in gynecology and obstetrics. *Clin. Obstet. Gynecol.* 15:856-1030, 1972.
Wiesner, P. J. and Tyler, C. W., Jr.: Venereal disease in obstetrics and gynecology. *Clin. Obstet. Gynecol.* 18: 31-278, 1975.